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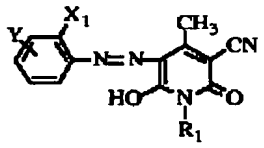
(54) DYE COMPOSITION AND METHOD FOR COLORING HYDROPHOBIC MATERIAL

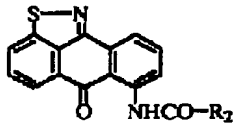
(57) Abstract:

PURPOSE: To obtain the composition, excellent in buildup and level dyeing properties and reproducibility in dyeing and useful as a yellow coloring matter for providing a highly lightfast colored material by mixing a pyridone-based compound with an isothiazoleanthrone-based compound.

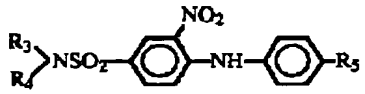
CONSTITUTION: This composition is obtained by mixing (A) preferably 99-1wt.% at least one selected from the compound group of formula I [X_1 is H, a halogen, cyano or nitro; Y is H, a halogen, phenylsulfonyloxy. etc.; R_1 is H, a 1-8C straight-chain or branched alkyl or a (phenyl-substituted)amino] with (B) preferably 1-99wt.% at least one selected from the compound group of formula II [R_2 is a (substituted)1-4C alkyl, a (substituted1-4C alkoxy or a (substituted) phenyl] and further (C) 1-50wt.% composition of a nitro-based compound containing at least one selected from the compound group of formula III (R_3 and R_4 are each H, a 1-4C alkyl or phenyl; R_5 is H or a 1-4C alkoxy).



I



II



III

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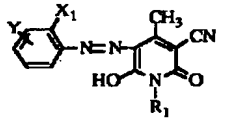
(54)【発明の名称】　染料組成物およびそれを用いる疎水性材料の着色方法

(57)【要約】

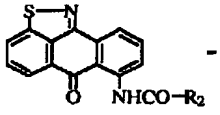
【構成】下記一般式（Ｉ）で示される化合物群から選ばれる少なくとも一種と、下記一般式（ＩＩ）で示される化合物群から選ばれる少なくとも一種とを混合してなる染料組成物、さらに、下記一般式（ＩＩＩ）で示される化合物群から選ばれる少なくとも一種を混合してなる染料組成物、及びそれらを用いる疎水性材料の着色方法。

【化１】



----------（I）

【化２】



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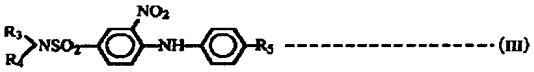
【化３】



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【効果】本発明の組成物は、染色において良好なビルドアップ性、均染性、再現性を有すると共に、高耐光な着色物が得られる組成物として有用である。

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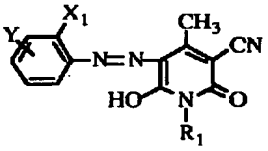
【特許請求の範囲】

【請求項１】下記一般式（Ｉ）

【化１】



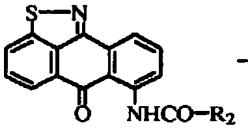
----------（I）

〔式中、X_1は水素原子、ハロゲン原子、シアノ基又はニトロ基を表わし、Ｙは水素原子、ハロゲン原子、フェニルスルホニルオキシ基、C_1～C_4アルキル基で置換されていてもよいアミノスルホニルオキシ基、C_1～C_4アルコキシC_1～C_4アルコキシC_1～C_4アルコキシカルボニル基、C_1～C_8の直鎖若しくは分岐のアルキルアミノスルホニル基、C_1～C_8の直鎖若しくは分岐のアルキルアミノカルボニル基、ニトロ基、５員または６員の酸素原子を１個含むシクロアルキルで置換され＊

2

＊ていてもよいC_1～C_4アルコキシカルボニル基、又はフェノキシC_1～C_4アルコキシカルボニル基を表わし、R_1は水素原子、C_1～C_8の直鎖若しくは分岐のアルキル基、又はフェニル基で置換されていてもよいアミノ基を表わす。〕で示される化合物群から選ばれる、少なくとも一種と、下記一般式（II）

【化２】

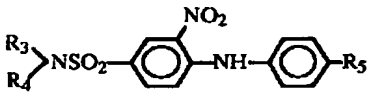


----------（II）

〔式中、R_2は置換されていてもよいC_1～C_4アルキル基、C_1～C_4アルコキシ基又はフェニル基を表わす。〕で示される化合物群から選ばれる少なくとも一種とを混合してなる染料組成物。

【請求項２】下記一般式（ＩＩＩ）

【化３】



----------（III）

〔式中、R_3及びR_4は、同一又は相異なり、水素原子、C_1～C_4アルキル基又はフェニル基を表わし、R_5は水素原子又はC_1～C_4アルコキシ基を表わす。〕で示される化合物群から選ばれる、少なくとも一種とを含有してなるニトロ系化合物含有組成物を、請求項１に記載の組成物に混合してなる染料組成物。

【請求項３】前記一般式（Ｉ）で示される化合物群から選ばれる少なくとも一種を99～１重量％と前記一般式（II）で示される化合物群から選ばれる少なくとも一種を１～99重量％含有してなる請求項１に記載の組成物。

【請求項４】請求項２に記載の組成物において、請求項１に記載の組成物に対する前記一般式（ＩＩＩ）で示される化合物群から選ばれる少なくとも一種の配合重量比率が、１～50重量％である染料組成物。

【請求項５】請求項１に記載の組成物を用いることを特徴とする疎水性材料の着色方法。

【請求項６】請求項２に記載の組成物を用いることを特徴とする疎水性材料の着色方法。

【発明の詳細な説明】

【０００１】

【産業上の利用分野】本発明は、ピリドン系化合物とイソチアゾールアンスロン系化合物との混合染料組成物、およびそれらにニトロ系化合物含有組成物をさらに混合してなる混合染料組成物、およびそれを用いる疎水性材料の着色方法に関する。更に詳しくは、本発明はポリエステル繊維またはその混交品などの疎水性繊維材料を経済的に高濃度にかつ高耐光染色するために黄色色素として有用な組成物およびその応用に関する。

【０００２】

【従来の技術】疎水性繊維材料を鮮明な黄色に染色また※

※は捺染する染料として、前記一般式（Ｉ）で示される化合物は、例えば特公昭47-18549、同49-26108、同54-17773、特開昭54-6250 、同58-57467、同58-149953 号の各公報にピリドン系モノアゾ染料が開示されている。前記一般式（II）で示される化合物は、例えば、特公昭44-21431号公報および特開昭48-73571号公報などに記載されている。前記一般式（ＩＩＩ）で示される化合物は、C.I.Disperse Yellow （シー．アイ．ジスパースイエロー）42,86 などとして公知の化合物である。また、自動車内装材として多用されているポリエステル系繊維材料を高耐光染色することができる染料として種々の分散染料組成物が、特開昭59-51950号公報、同60-239577 号公報などに開示されている。

【０００３】

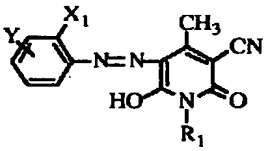
【発明が解決しようとする課題】しかしながら、このようなピリドン系モノアゾ染料を汎用性の赤色染料及び／または青色染料を配合して染色すると、不均染などのトラブルがしばしば発生していた。特に黄色染料のみ染色条件下での安定性（以下、染浴安定性と言う）、均染性および耐光堅牢度が不十分であるため、染色バッチ間で色相差を生じたり、染色斑を生じたり、染色物が日光で変退色するなどの問題があった。

【０００４】

【課題を解決するための手段】本発明者等は、これらの問題を解決するため鋭意検討の結果、本発明を完成するに至った。本発明は、下記一般式（Ｉ）

【０００５】

【化４】

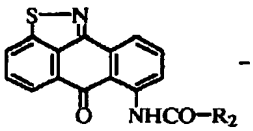


(I)

【０００６】〔式中、X_1は水素原子、ハロゲン原子、シアノ基又はニトロ基を表わし、Ｙは水素原子、ハロゲン原子、フェニルスルホニルオキシ基、C_1～C_4アルキル基で置換されていてもよいアミノスルホニルオキシ基、C_1～C_4アルコキシC_1～C_4アルコキシC_1～C_4アルコキシカルボニル基、C_1～C_8の直鎖若しくは分岐のアルキルアミノスルホニル基、C_1～C_8の直鎖若しくは分岐のアルキルアミノカルボニル基、ニトロ基、５員または６員の酸素原子を１個含むシクロアルキルで置換されていてもよいC_1～C_4アルコキシカルボニル基、又はフェノキシC_1～C_4アルコキシカルボニル基を表わし、R_1は水素原子、C_1～C_8の直鎖若しくは分岐のアルキル基、又はフェニル基で置換されていてもよいアミノ基を表わす。〕で示される化合物群から選ばれる、少なくとも一種と、下記一般式（II）、

【０００７】

【化５】

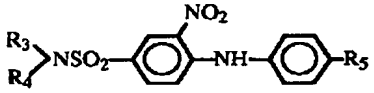


(II)

【０００８】〔式中、R_2は置換されていてもよいC_1～C_4アルキル基、C_1～C_4アルコキシ基又はフェニル基を表わす。〕で示される化合物群から選ばれる少なくとも一種とを混合してなる染料組成物、およびこの組成物に、下記一般式（ＩＩＩ）

【０００９】

【化６】



(III)

【００１０】〔式中、R_3及びR_4は、同一又は相異なり、水素原子、C_1～C_4アルキル基又はフェニル基を表わし、R_5は水素原子又はC_1～C_4アルコキシ基を表わす。〕で示される化合物群から選ばれる、少なくとも一種とを含有してなるニトロ系化合物含有組成物を、混合してなる染料組成物、さらには、それらを用いることを特徴とする疎水性材料の着色方法を提供するものである。

【００１１】本発明において、前記一般式（Ｉ）で示される化合物群から選ばれる少なくとも一種と前記一般式（II）で示される化合物群から選ばれる少なくとも一種との配合重量比率は、得られる染料組成物に対する所望の特性に応じて適宜選択することができるが、通常は純分換算で99～１重量％：１～99重量％であり、好ましくは99～20重量％：１～80重量％である。さらに、これら組成物に対する一般式（ＩＩＩ）で示される化合物群から選ばれる少なくとも一種の配合重量比率は、１～50重量％である。

【００１２】本発明の組成物は、所望の用途に応じ、染料を混合する際の周知の方法で前記一般式（Ｉ）、（II）、および（ＩＩＩ）で示される化合物の所定量を混合することによって製造することができ、単に色相の調整などの目的で前記一般式（Ｉ）、（II）及び（ＩＩＩ）で示される化合物以外の染料化合物、例えば、黄色系分散染料として知られているアゾ系またはキノフタロン系などの化合物を含有することができる。また、目的、用途に応じて、分散剤、増量剤、pH調整剤、分散均染剤、ビルダー、染色助剤、溶剤、樹脂バインダーなどを含有することができる。

【００１３】本発明の組成物は、染色において良好なビルドアップ性、均染性、再現性を有すると共に、高耐光な着色物が得られる組成物として有用である。本発明の組成物は、高耐光性、及び均染型分散染料、昇華転写型感熱記録用高耐光色素などとして、ポリエステル、カチオン可染型ポリエステル、ジアセテート、トリアセテート、ポリアミド、ポリカーボネートなどの疎水性材料の着色に有用である。とりわけ本発明の組成物は、疎水性繊維材料を染色または捺染する高耐光及び高均染型黄色系分散染料、および自動車内装材染色用分散染料として有用である。

【００１４】本発明の組成物を分散染料として用いる場合、前記一般式（Ｉ）、一般式（II）及び一般式（ＩＩＩ）で示される化合物は、それぞれ製造工程から得られるウェットケーキに、ナフタレンスルホン酸のホルマリン縮合物やリグニンスルホン酸系などの分散剤の単独あるいは混合物を加えて、サンドミルなどで微粒化分散して得られるリキッド品、あるいはそれを乾燥して得られるパウダー品の状態でそれぞれ所定量を配合してもよいが、染色時、染浴中で配合してもよい。

【００１５】疎水性繊維材料を染色するにあたっては、本発明の組成物を水性媒体中に分散させた染浴中に、必要に応じてpH調整、分散均染剤などを加えた後、疎水性繊維材料を浸漬して、加圧下１０５℃以上、好ましくは１１０～１４０℃で３０～６０分間染色する。この染色時間は染着の状態により短縮または延長することができる。

【００１６】また、ｏ－フェニルフェノールやメチルナフタレンなどのキャリヤーの存在下で比較的低温、例えば、水の沸騰状態で染色することもできる。さらに、染料分散液を布にパディングした後、１００℃以上でスチ

ーミングや乾熱処理する染色方法も可能である。

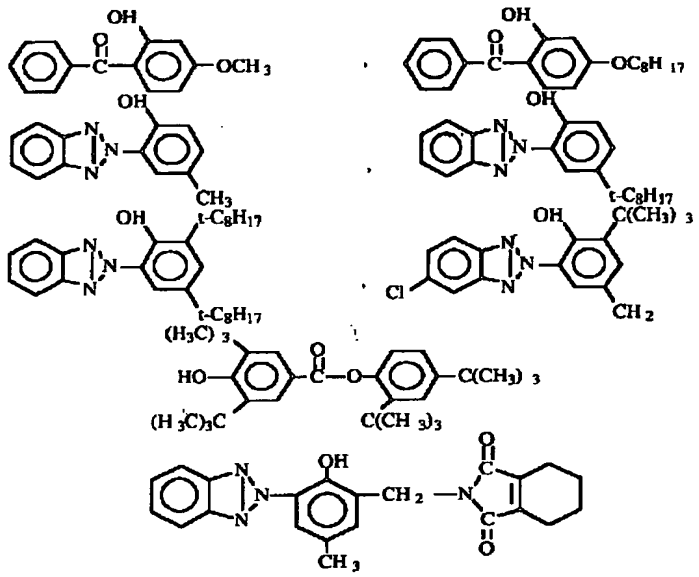
【００１７】捺染の場合は、染料分散液を適当な糊剤と共に練り合わせ、これを布に捺印した後、スチーミングまたは乾熱処理を行う。また、インクジェット方式によって捺染することもできる。

【００１８】疎水性繊維材料としては、ポリエステル、カチオン可染型ポリエステル、ジアセテート、トリアセテート、ポリアミド、ポリカーボネートなどが挙げられる。また、ポリエステル繊維との混交品としては、ポリ＊アミド、ジアセテート、カチオン可染型ポリエステル、セルロース繊維、羊毛、絹との混紡、交織品があげられる。

【００１９】さらに、耐光性の優れた染色物を得るため、紫外線吸収剤として、例えば、下記に示すような公知のベンゾトリアゾール系化合物の一種以上を使用することができる。

【００２０】

【化７】



【００２１】このような紫外線吸収剤の使用量は特に制限されないが、好ましくは被染色物の重量に対し０．５～５％である。

【００２２】本発明の組成物は、それを分散染料として用いる場合、ポリエステル極細フィラメント糸、異形断面糸、酸化チタンなどを含む艶けし加工糸などの各種加工、改質糸であっても、特定の赤色成分および青色成分との染着相容性に優れるため、優れた均染性と再現性で優れた耐光性の染色物を得ることができ、ターリング性においても優れるものである。また、特定の三原色用染料のうち、赤色成分としては、C.I.Disperse Red（シー．アイ．ジスパース．レッド）60,75,91,92,127,132,146,159,164,189,190,191,192,207,229,283,288,302 のうち１種またはそれ以上が、青色成分としてはC.I.Disperse Blue （シー．アイ．ジスパース．ブルー） 26,27,52,54,56,73,77,81,83,91,95,116,158,197,214 のうち１種またはそれ以上の併用使用が好適に用いられる。

【００２３】本発明の組成物は、特に疎水性繊維材料を染色または捺染する分散染料として、優れた染色性、堅牢度を有するものである。更に具体的には前記一般式 ※（Ｉ）で示される化合物が有する優れたカラーバリュー、温度感性などの特長を維持しつつ、配合による相乗効果によって、前記一般式（Ｉ）で示される化合物の欠点であったpH依存性を改良し、更に前記一般式（ＩＩ），（ＩＩＩ）の特に優れた耐光堅牢度も維持できる。このように本発明の組成物は、高品質の染色物を生産性良く提供することができるものである。

【００２４】

【発明の効果】本発明の組成物は、染色において良好なビルドアップ性、均染性、再現性を有すると共に、高耐光な着色物が得られる組成物として有用である。

【００２５】以下、実施例により本発明を更に詳しく説明する。なお、本文中、%は重量を表わす。

【００２６】

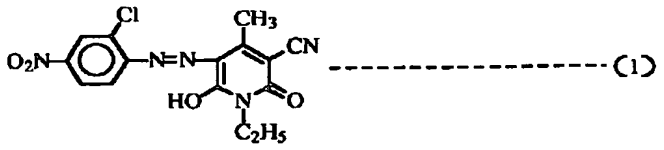
【実施例】

実施例１

下記式（１）

【００２７】

【化８】



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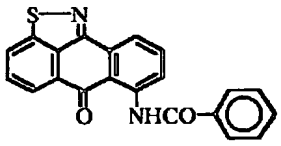
【００２８】の化合物150gと下記式（２）

【００２９】

【化９】



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【００３０】の化合物150gを、ナフタレンスルホン酸ソーダのホルマリン縮合物300gと共に、600g水中でサンドミルにより微粒化し、次いでリグニンスルホン酸350gを加えた後、噴霧乾燥した。乾燥品として、化合物（１）15%、（２）15%を含み、アニオン系分散剤65%、水分５%から成る黄色分散染料組成物を得た。

【００３１】実施例２

実施例１で得られた化合物5gおよびスミポンTF（住友化学社製染色助剤）を水1000mlに分散させ、酢酸と酢酸ナトリウムを添加してpH５に調整し、染浴を作成した。この染浴にテトロントロピカル（ポリエステル布東レ（株）製品）100gを浸し、60℃から１分間に１℃の割合で昇温し、130 ℃で60分間染色した。次いで染色物をカセイソーダ3g、ハイドロサルファイト3g、ベタイン型両性界面活性剤3gと水3000ｇからなる処理液で85℃で10分間還元洗浄処理を行い、水洗、乾燥したところ、均一で濃厚な黄色の染色物が再現性良く得られた。得られた染色物は良好な耐光性を示した。

【００３２】実施例３

実施例１で得られた黄色分散染料組成物1.8gとスミカロン UL レッド GF ２．５ｇ（住友化学工業（株）製），スミカロン UL ブルー GF 1.35ｇ（住友化学工業（株）製）とスミポンTF（住友化学社製染色助剤）を染浴中に配合し、水1000mlに分散させ、酢酸と酢酸ナトリウムを添加してpH５に調整し、染浴を作成した。この染浴にテトロントロピカル（ポリエステル東レ（株）製品）100gを浸し、実施例１と同様に染色し、得られた染色物は焦＊げ茶色に均一に再現性良く染色され、さらに良好な耐光性を示した。

【００３３】［染浴安定性試験］上記染料分散液に水酸化ナトリウム1.18g とリン酸二水素ナトリウム6.8gを添加してpH７に調整し、染浴を作成する。この染浴をそのまま試験用染色装置カラーペット（日本染色機械（株）社製）にて染色ポット中で撹拌しながら１４０℃で30分保持する。その後、90℃まで急冷し、直ちにテトロントロピカル（ポリエステル布東レ（株）製品）を巻き付けた、布染色用ホルダーを投入し、再び撹拌しながら１３０℃×60分保持し染色を行う。染色後、90℃以下に冷却して染浴中の被染物を取り出し、水洗、還元洗浄、水洗、乾燥して最後の染色物を得る。得られた染色物を、実施例１と同様の染色条件で染色した布を標準として、染色力、色相の目視判定を行う。

【００３４】［耐光堅牢度試験］得られた染色布にウレタンフォームを裏打ちし、310nm 以下の光を遮断する紫外線カットフィルターを試料表面から１cmのところに取り付けたものをキセノンフェードメータ（ブラックパネル温度89℃）で７５０KJ照射し（検出波長 340nm）JIS L 0804-1965 変退色用グレースケールで判定する。

【００３５】実施例４～１７

実施例１中の化合物（１）および化合物（２）の代わりに表１及び表２に示す化合物（３）～（１７）を用い、表３に示す染料調合物を上記染浴安定性試験、染色物の耐光堅牢度試験を行ったところ、表３に示すように良好な結果を示した。

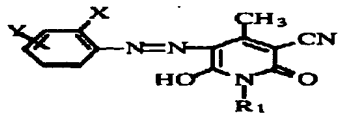
【００３６】比較例１

実施例１の化合物（１）及び化合物（２）の代わりに化合物（１）単独で、表３に示す染料調合物を得て、実施例４～１７と同様に染浴安定性試験、染色物の耐光堅牢度試験を行った。その結果は表３に示すように、いずれも実施例に対して劣っていた。

【００３７】

【表１】

式（1）の代わりに使用される染料



化合物No.	X	Y	R_1
（３）	H	3—$OSO_2N(CH_3)_2$	H
（４）	H	3—OSO_2— 	CH_3
（５）	NO_2	H	C_2H_5
（６）	H	4—$COOC_2H_4OC_2H_4OCH_3$	C_2H_5
（７）	H	4—SO_2NHCH 	C_4H_9
（８）	H	4—$CONHCH_2CH$ 	CH_3
（９）	H	Cl	C_4H_9
（１０）	H	4—$COOC_3H_6$— 	C_4H_9
（１１）	CN	4—$SO_2NHCH(CH_3)_2$	H
（１２）	NO_2	OCH_3	$CH_2CHC_4H_9$ C_2H_5
（１３）	H	3—Cl	NH— 
（１４）	NO_2	4—Cl	C_3H_7
（１５）	H	4—$COOC_2H_4O$— 	CH_3

【００３８】

【表２】

式（2）の代わりに使用される染料

化合物No.	R_2
（１６）	CH_3
（１７）	C_2H_5

＊（以下余白）

＊　【００３９】

【表３】

実施例	配合種	染浴安定性		耐光堅牢度
		染色力	色相	
4	(1) + (2)	100	0,0	4-5
5	(3) + (2)	100	0,0	4-5
6	(4) + (2)	100	0,0-1D	4-5
7	(5) + (2)	95	0,0-1D	4-5
8	(6) + (2)	95	0-1P,0-1D	4-5
9	(7) + (16)	95	0-1P,1D	4-5
10	(8) + (16)	95	0-1P,0-1D	4-5
11	(9) + (16)	95	0,0-1D	4-5
12	(10) + (16)	95	0-1P,0-1D	4-5
13	(11) + (16)	90	1P,1D	4
14	(12) + (17)	90	1P,1D	4
15	(13) + (17)	95	0-1P,0-1D	4
16	(14) + (17)	95	1P,0-1D	4
17	(15) + (17)	95	1P,1D	4
比較例				
1	(1)	60	2-3P,3D	2

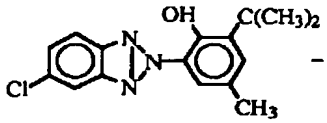
【００４０】実施例１８

実施例１と同様に化合物（１）および（２）を含有する分散染料調合物に式（１８）

＊【００４１】

【化１０】

＊



----------（１８）

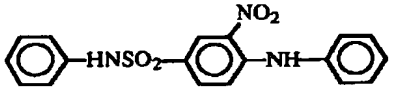
【００４２】で示される紫外線吸収剤分散液〔紫外線吸収剤：式（１８）で示される化合物４０％、アニオン系分散剤２０％、水４０％から成る混合物〕を用い、実施例１と同様に染色した。この紫外線吸収剤分散液は、染浴時に2g添加した。得られた染色物は、染め斑なく均一でまた上記耐光堅牢度試験においても、更に優れた耐光※性を示した。

【００４３】実施例１９

化合物（１）100gと化合物（２）100gと式（１９）

【００４４】

【化１１】



----------（１９）

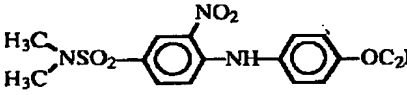
【００４５】で示される化合物〔化合物（１９）〕100gをナフタレンスルホン酸ソーダのホルマリン縮合物300gと共に600gの水中でサンドミルにより微粒化し、次いでリグノンスルホン酸350gを加えた後、噴霧乾燥した。乾燥品として化合物（１）10%,化合物（１９）10%を含み、アニオン系分散剤165%、水分5%から成る黄色分散染料組成物を得た。本組成物5gを実施例１と同様に染色し★たところ、均一で濃厚な黄色の染色物が再現性良く得られた。得られた染色物は良好な耐光性を示した。

【００４６】実施例20

実施例１９中の化合物（１９）の代わりに式（２０）

【００４７】

【化１２】



----------（２０）

【００４８】で示される化合物〔化合物（２０）〕を用いて黄色分散染料組成物を得、実施例１と同様に染色したところ、均一で濃厚な黄色の染色物が再現性良く得られた。得られた染色物は良好な耐光性を示した。

Priority Applications (No Type Date): JP 94169759 A 19940721
Patent Details:
Patent No Kind Lan Pg   Main IPC   Filing Notes
JP 8034933   A   7 C09B-067/22

Abstract (Basic): JP 8034933 A
        A dye compsn. comprises one or more cpds. of formula (I) and (II), where X1 is H, halogen, cyano or nitro gp.; Y is H , halogen, phenyl-sulphonyloxy, amino-sulphonyloxy, opt. having 1-4 C alkyl, 1-4 C alkoxy 1-4 C alkoxy 1-4 C alkoxy carbonyl, 1-8 C alkyl-aminosulphonyl, 1-8 C alkyl amino-carbonyl, nitro, 1-4 C alkoxy- carbonyl opt. having 5 member or 6 member cycloalkyl contg. 1 oxygen atom., or phenoxy 1-4 C alkoxy carbonyl; R1 is H, 1-8 C alkyl or amino opt. having phenyl; R2 is 1-4 C alkyl, 1-4 C alkoxy or phenyl.
        USE - The dye compsn. is useful for dyeing a hydrophobic material, e.g. polyester fibre or a mixed woven fabric of such fibres.
        ADVANTAGE - The dye compsn. has good build-up, levelling, and reproducibility. The dyed material has good light resistance.
        Dwg.0/0
Derwent Class: A60; E21; E23; F06
International Patent Class (Main): C09B-067/22
International Patent Class (Additional): D06P-003/54
?map anpryy temp s7

1 Select Statement(s), 1 Search Term(s)
Serial#TD333

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      S8   1 AN=JP 94169759
?s s8 not s7
               1 S8
               1 S7
      S9   0 S8 NOT S7
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               1 PN=JP 6059510
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               0 AN=94JP-059510
     S10   1 PN=(JP 6059510 OR JP 94059510) OR AN=94JP-059510
?t 10/7

 10/7/1
DIALOG(R)File 351:Derwent WPI
(c) 2001 Derwent Info Ltd. All rts. reserv.

009832454   **Image available**
WPI Acc No: 1994-112310/**199414**
 Colourant for piece dyeing-type yellow colour toner - comprises a 3-cyano-5-azo-6-hydroxy (delta-valerolactam) derivs.
Patent Assignee: MITSUI TOATSU CHEM INC (MITK)
Number of Countries: 001 Number of Patents: 001
Patent Family:
Patent No   Kind   Date   Applicat No   Kind   Date   Week
JP 6059510   A   19940304 JP 92212618   A   19920810 199414 B

Priority Applications (No Type Date): JP 92212618 A 19920810
Patent Details:
Patent No Kind Lan Pg   Main IPC   Filing Notes
JP 6059510   A   9 G03G-009/09

Abstract (Basic): JP 6059510 A
        Colourant for piece dyeing-type yellow colour toner is of formula (I)In (I) R1 is H or alkyl gp. R2 is H opt. substd. alkyl, cycloalkyl

gp. allyl gp. or opt. substd. phenyl gp. and Ar is opt. substd. phenyl gp.

The colour toner is coloured by using at least one kind of the colour of (I).

The colour toner is obtd. by colouring a toner resin by using the yellow colour of (I) and a non-ion or anion dispersing agent. The colouring density of the colour toner is 0.1-10 wt. %. The non-ion dispersing agent is polyoxyethylene alkyl ether-type, polyethylene glycol ether-type or dialkyl sulphosalicylate type agent. The anion dispersion agent is e.g. naphthalene formaline sulphonate condensation matter.

USE/ADVANTAGE - The transparent yellow image of high sharpness free from fogging can be obtd. The light proof property of the copied matter can be improved.

Dwg.0/0

Derwent Class: A89; E21; G08; P84; S06
International Patent Class (Main): G03G-009/09
International Patent Class (Additional): C09B-029/42
?map anpryy temp s10

1 Select Statement(s), 1 Search Term(s)
Serial#TD334

?exs
Executing TD334
S11 1 AN=JP 92212618
?s s11 not s10
1 S11
1 S10
S12 0 S11 NOT S10
?s pn=de 2210168
S13 1 PN=DE 2210168
?t 13/7

13/7/1
DIALOG(R)File 351:Derwent WPI
(c) 2001 Derwent Info Ltd. All rts. reserv.

000977462
WPI Acc No: 1973-54735U/**197338**
Bromine-contg quinophthalone dyes - give fast yellow shades on polyesters
Patent Assignee: BADISCHE ANILIN & SODA FAB AG (BADI)
Number of Countries: 007 Number of Patents: 007
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
DE 2210168	A					197338 B
BE 796205	A					197340
FR 2174888	A					197351
JP 48102130	A	19731222				197409
DD 103254	A	19740120				197413
GB 1413754	A	19751112				197546
CH 571556	A	19760115				197612

Priority Applications (No Type Date): DE 2210168 A 19720303

Abstract (Basic): DE 2210168 A

Dyes have formula: (where R1 is H, F, Cl, Me, OMe, Ph or alkylcarboxylamino; R2 is H, Cl or Me; R1 and R2 may together form a fused benzene ring; n is 0 - 2; X is OH or opt. substd. (cyclo)alkoxy or amino), and are prepd. by bromination of the corresp. cpd. where the Br atom is the 4-posn. on the quinoline gp. is replaced by H.

Derwent Class: A60; E23; F06
International Patent Class (Additional): C09B-025/00
?map anpryy temp s13

PATENT ABSTRACTS OF JAPAN

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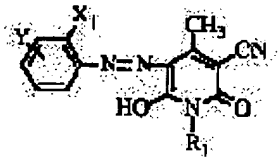
(51)Int.CI. C09B 67/22
D06P 3/54

(21)Application number : 06-169759
(22)Date of filing : 21.07.1994

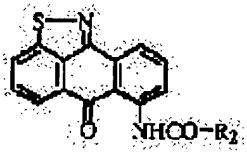
(71)Applicant : SUMITOMO CHEM CO LTD
(72)Inventor : KATSUTA OSAYUKI
YABUSHITA SHINICHI
HASHIZUME SHUHEI

(54) DYE COMPOSITION AND METHOD FOR COLORING HYDROPHOBIC MATERIAL

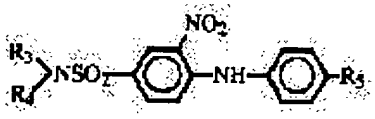
(57)Abstract:
PURPOSE: To obtain the composition, excellent in buildup and level dyeing properties and reproducibility in dyeing and useful as a yellow coloring matter for providing a highly lightfast colored material by mixing a pyridone-based compound with an isothiazoleanthrone-based compound.
CONSTITUTION: This composition is obtained by mixing (A) preferably 99-1wt.% at least one selected from the compound group of formula I [X1 is H, a halogen, cyano or nitro; Y is H, a halogen, phenylsulfonyloxy. etc.; R1 is H, a 1-8C straight-chain or branched alkyl or a (phenyl-substituted)amino] with (B) preferably 1-99wt.% at least one selected from the compound group of formula II [R2 is a (substituted)1-4C alkyl, a (substituted1-4C alkoxy or a (substituted) phenyl] and further (C) 1-50wt.% composition of a nitro-based compound containing at least one selected from the compound group of formula III (R3 and R4 are each H, a 1-4C alkyl or phenyl; R5 is H or a 1-4C alkoxy).



I



II



III

LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

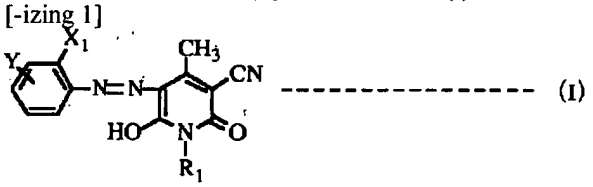
[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

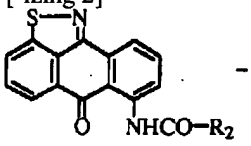
CLAIMS

[Claim]
[Claim 1] The following general formula (I)
[-izing 1]



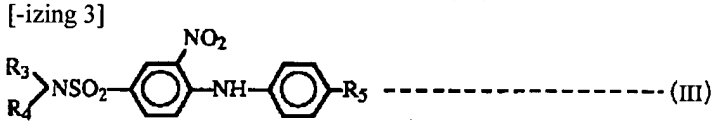
(I)

X1 expresses a hydrogen atom, a halogen atom, a cyano group, or a nitro group among [formula. Y is a hydrogen atom, a halogen atom, the phenyl sulfo nil oxy-base, and C1 - C4. The amino sulfo nil oxy-base which may be replaced by the alkyl group, C1 - C4 Alkoxy C1-C4 Alkoxy C1 - C4 Alkoxy carbonyl group, C1 - C8 A straight chain or the alkylamino sulfo nil machine of branching, C1 - C8 A straight chain or the alkylamino carbonyl group of branching, C1 - the C4 alkoxy carbonyl group containing one oxygen atom of a nitro group, 5 members, or 6 members which may be replaced by cycloalkyl, or the phenoxy C1 - C4 an alkoxy carbonyl group -- expressing -- R1 A hydrogen atom, and C1 - C8 A straight chain, the alkyl group of branching, or the amino group that may be replaced by the phenyl group is expressed.] It is [a kind and] it the following general formula (II) coming out and being chosen out of the compound group shown, and that it is few.
[-izing 2]



(II)

R2 expresses among [formula C1 - C4 alkyl group, C1 - C4 alkoxy group, or the phenyl group which may be replaced.] The color constituent which comes out and is chosen out of the compound group shown and which comes to mix a kind at least.
[Claim 2] The following general formula (III)
[-izing 3]



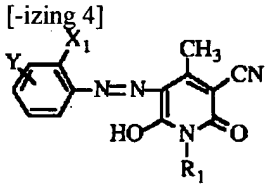
(III)

R3 and R4 express a hydrogen atom, C1 - C4 alkyl group, or a phenyl group in an identity or difference among [formula, and R5 expresses a hydrogen atom, or C1 - C4 alkoxy group.] The color constituent which comes to mix the nitroglycerine system compound inclusion constituent which comes out and is chosen out of the compound group shown, and which comes to contain a kind at least to a constituent given in a claim 1.
[Claim 3] A constituent given in the claim 1 which is chosen out of the compound group which is chosen out of the compound group shown by the aforementioned general formula (I), and which is shown by 99 - 1 % of the weight, and the aforementioned general formula (II) in a kind at least and which comes to contain a kind one to 99% of the weight at least.
[Claim 4] The color constituent at least a kind of combination weight proportion of whose chosen as a claim 2 out of the compound group shown by the aforementioned general formula (III) to a constituent given in a claim 1 in the constituent of a publication is 1 - 50 % of the weight.
[Claim 5] The tinction technique of the hydrophobic material characterized by using the constituent of a publication for a claim 1.
[Claim 6] The tinction technique of the hydrophobic material characterized by using the constituent of a publication for a claim 2.

[Translation done.]

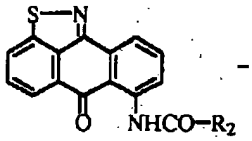
DETAILED DESCRIPTION

[Detailed description]
[0001]
[Field of the Invention] this invention relates to the tinction technique of the mixed-dyestuff constituent of a pyridone system compound and an iso thiazole anthrone system compound, the mixed-dyestuff constituent which comes to mix a nitroglycerine system compound inclusion constituent to them further, and the hydrophobic material using it. furthermore -- detailed -- this invention -- hydrophobic textile materials, such as a polyester fiber or its jumble article, -- economical -- high concentration -- and in order to carry out light-proof [quantity] dyeing, it is related with a constituent useful as yellow coloring matter, and its application
[0002]
[Prior art] the compound shown by the aforementioned general formula (I) as a color which dyes or prints hydrophobic textile materials clear yellow -- for example, Japanese Patent Publication No. 47-18549 -- said -- 49-26108 -- said -- 54-17773 and Provisional Publication No. 54-6250 -- said -- 58-57467 -- said -- 58-149953 The pyridone system monoazo color is indicated by each official report of a number. The compound shown by the aforementioned general formula (II) is indicated by for example, the Japanese Patent Publication No. 44-No. 21431 official report, the Provisional-Publication-No. 48-No. 73571 official report, etc. the compound shown by the aforementioned general formula (III) -- C.I.Disperse Yellow 42 (**-. eye . ******-******** -) and 86 etc. -- ****** -- it is a well-known compound moreover, the various disperse dye constituents as a color which can carry out light-proof [quantity] dyeing of the polyester-fiber material currently used abundantly as automobile interior material -- a Provisional-Publication-No. 51950 [59 to] official report -- said -- 60-239577 It is indicated by the number official report etc.
[0003]
[Object of the Invention] However, when the red color and/or blue color of versatility were blended and such a pyridone system monoazo color was dyed, troubles, such as non-level dyeing, had often occurred. Since only the yellow color had especially inadequate stability (henceforth a dye bath stability), level dyeing nature, and color fastness to light under a dyeing condition, produced the hue difference between dyeing batches, the uneven dyeing was produced, and there was a problem of a dyeing object changing in color in daylight.
[0004]
[The means for solving a technical problem] this invention person etc. came to complete this invention zealously as a result of the study, in order to solve these problems. this invention is the following general formula (I).
[0005]
[-izing 4]



---------- (I)

[0006] X1 expresses a hydrogen atom, a halogen atom, a cyano group, or a nitro group among [formula. Y is a hydrogen atom, a halogen atom, the phenyl sulfo nil oxy-base, and C1 - C4. The amino sulfo nil oxy-base which may be replaced by the alkyl group, C1 - C4 Alkoxy C1-C4 Alkoxy C1 - C4 Alkoxy carbonyl group, C1 - C8 A straight chain or the alkylamino sulfo nil machine of branching, C1 - C8 A straight chain or the alkylamino carbonyl group of branching, C1 - the C4 alkoxy carbonyl group containing one oxygen atom of a nitro group, 5 members, or 6 members which may be replaced by cycloalkyl, or the phenoxy C1 - C4 an alkoxy carbonyl group -- expressing -- R1 A hydrogen atom, and C1 - C8 A straight chain, the alkyl group of branching, or the amino group that may be replaced by the phenyl group is expressed.] it comes out and is chosen out of the compound group shown -- at least -- a kind, and the following general formula (II) and [0007]
[-izing 5]

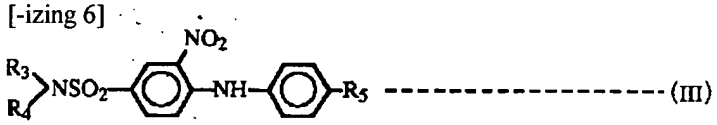


---------- (II)

[0008] R2 expresses among [formula C1 - C4 alkyl group, C1 - C4 alkoxy group, or the phenyl group which may be replaced.] It is [the color constituent which comes out and is chosen out of the compound group shown and which comes to mix a kind at least, and] the following general formula (III) to this constituent.

[0009]

[-izing 6]



---------- (III)

[0010] R3 and R4 express a hydrogen atom, C1 - C4 alkyl group, or a phenyl group in an identity or difference among [formula, and R5 expresses a hydrogen atom, or C1 - C4 alkoxy group.] The tinction technique of the color constituent which comes to mix the nitroglycerine system compound inclusion constituent which comes out and is chosen out of the compound group shown, and which comes to contain a kind at least, and the hydrophobic material further characterized by using them is offered.

[0011] In this invention, although the combination weight proportion at least with a kind chosen out of the compound group which is chosen out of the compound group shown by the aforementioned general formula (I), and which is shown by kind and the aforementioned general formula (II) at least can be suitably chosen according to the property of the request to the color constituent obtained, it is usually 99 - 1 % of the weight : 1 - 99 % of the weight in a pure part conversion, and is 99 - 20 % of the weight : 1 - 80 % of the weight preferably. Furthermore, at least a kind of combination weight proportion chosen out of the compound group shown by the general formula (III) to these constituents is 1 - 50 % of the weight.

[0012] According to desired intended use, the constituent of this invention by the technique of the common knowledge at the time of mixing a color The aforementioned general formula (I), It can manufacture by mixing (II) and (III) the specified quantity of the compound shown. Compounds, such as the aforementioned general formula (I), (II) and (III) color compounds other than the compound shown, for example, the azo system known as a yellow system disperse dye, and a kino ******** system, can only be contained for the purpose, such as adjustment of a hue. Moreover, according to the purpose and intended use, a dispersant, an extending agent, pH regulator, a distributed level dyeing agent, a builder, a dyeing assistant, a solvent, a resin binder, etc. can be contained.

[0013] while the constituent of this invention has good build-up nature, level dyeing nature, and repeatability in dyeing -- quantity -- -proof -- it is useful as a constituent with which a **** tinction object is obtained The constituent of this invention is useful to tinction of hydrophobic materials, such as polyester, cation dyeable type polyester, a diacetate, a triacetate, a polyamide, and a polycarbonate, as high light resistance and a level dyeing type disperse dye, a photopigment for sublimation imprint type thermal recording-proof [quantity], etc. The constituent of this invention is useful especially as the light-proof quantity] which dyes or prints hydrophobic textile materials, a high level dyeing type yellow system disperse dye, and a disperse dye for automobile interior material dyeing.

[0014] When using the constituent of this invention as a disperse dye, the compound shown by the aforementioned general formula (I), the general formula (II), and the general formula (III) Independent or mixture of dispersants, such as a formalin condensate of a naphthalene sulfonic acid and a ligninsulfonic-acid system, is added to **********-** obtained from a manufacturing process, respectively. Although the specified quantity may be blended in the state of the liquid article which carries out atomization variance and is obtained by the sand mill etc., or the powder article obtained by drying it, respectively, you may blend in a dye bath at the time of dyeing.

[0015] After adding pH adjustment, a distributed level dyeing agent, etc. in dyeing hydrophobic textile materials into the dye bath which distributed the constituent of this invention in the aquosity medium if needed, it is immersed and 105 degrees C or more of hydrophobic textile materials are preferably dyed for 30 - 60 minutes at 110-140 degrees C under pressurization. This dyeing time can be shortened or extended according to the status of stain arrival. [0016] Moreover, it can also dye in the state of ebullism of low temperature, for example, water, comparatively under presence of carriers, such as o-phenylphenol and a methylnaphthalene. Furthermore, after padding color variance liquid on cloth, steaming and the dyeing technique which carries out dry heat treatment are also possible above 100 degrees C.

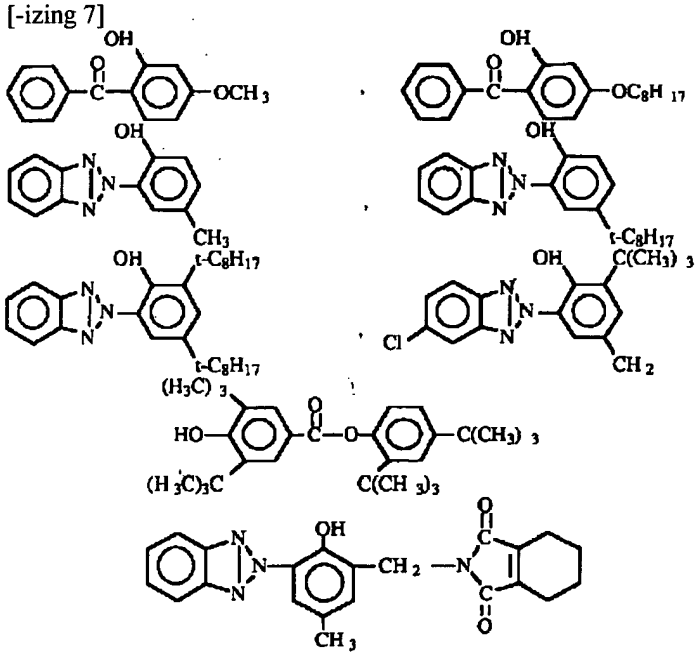
[0017] In textile printing, after kneading color variance liquid together with a suitable sizing agent and sealing cloth in this, steaming or dry heat treatment is performed. Moreover, an ink-jet formula can also print.

[0018] As hydrophobic textile materials, polyester, cation dyeable type polyester, a diacetate, a triacetate, a polyamide, a polycarbonate, etc. are mentioned. Moreover, as a jumble article with a polyester fiber, the mix spinning with a polyamide, a diacetate, cation dyeable type polyester, cellulose fiber, sheep wool, and silk and a union article are raised.

[0019] Furthermore, since the light-fast outstanding dyeing object is obtained, more than a kind of a well-known benzotriazol system compound which is shown below can be used as an ultraviolet ray absorbent.

[0020]

[-izing 7]



[0021] Although especially the amount of such ultraviolet ray absorbent used is not restricted, it is 0.5 - 5% to the weight of a dyed object preferably.

[0022] Since they are excellent in the stain arrival compatibility with a specific red component and a blue component even if the constituents of this invention are various manipulations, such as lusterless finished yarn containing polyester super-thin filament yarn, a modified cross section fiber, titanium oxide, etc., and reforming yarn when using it as a disperse dye, they can obtain the light-fast dyeing object excellent in the outstanding level dyeing nature and repeatability, and are excellent also in **-ring nature. moreover, as a red component, among the specific colors for three primary colors C. I.Disperse Red 60, 75, 91, 92, 127, 132, 146, 159, 164, 189, 190, 191, 192, 207, and 229,283,288,302 (**-. eye . ******-** . red) Inside one sort or more than it As a blue component, it is C.I.Disperse Blue (**-. eye . ******-** . blue). 26, 27, 52, 54, 56, 73, 77, 81, 83, 91, and 95,116,158,197,214 One sort or the combined use use beyond it is used suitably inside.

[0023] It has the outstanding dye affinity and the outstanding fastness, using especially the constituent of this invention as the disperse dye which dyes or prints hydrophobic textile materials. Furthermore, maintaining the outstanding features which the compound specifically shown by the aforementioned general formula (I) has, such as the Calah-value and temperature sensibility, pH dependency which was the fault of the compound shown by the aforementioned general formula (I) is improved according to the synergistic effect by combination, and the color fastness to light which was further excellent in especially the aforementioned general formula (II) and (III) can also be maintained. Thus, the constituent of this invention can offer a quality dyeing object with a sufficient productivity.

[0024]

[Effect of the invention] while the constituent of this invention has good build-up nature, level dyeing nature, and repeatability in dyeing -- quantity -- -proof -- it is useful as a constituent with which a **** tinction object is obtained

[0025] Hereafter, an example explains this invention still in detail. In addition, % expresses a weight among a text.

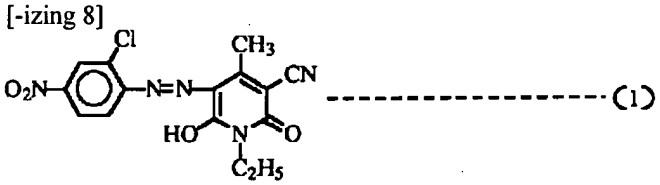
[0026]

[Example]

The example 1 following formula (1)

[0027]

[-izing 8]

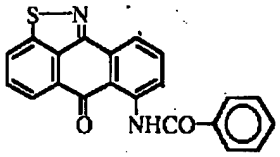


(1)

[0028] 150g of ********s, the following formula (2)

[0029]

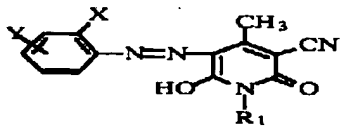
[-izing 9]



---------- (2)

[0030] The spray drying was carried out, after having atomized 150g of ********s by the sand mill by 600g underwater with 300g of the formalin condensates of naphthalene sulfonic-acid soda and adding 350g of ligninsulfonic acids subsequently. The yellow disperse dye constituent which consists of 65% of anion system dispersants and 5% of moisture as a xeransis article including compound (1)15% and (2)15% was obtained.
[0031] 1000ml of water was made to distribute 5g of compounds and ******** TF (dyeing assistant by Sumitomo Chemical Co., Ltd.) which were obtained in the example 2 example 1, and an acetic acid and sodium acetate were added, it adjusted to pH 5, and the dye bath was created. Dacron tropical (polyester cloth Toray Industries, Inc. product) 100g was dipped in this dye bath, the temperature up was carried out at a rate of 1 degree C in 1 minute from 60 degrees C, and it dyed for 60 minutes by 130 **. Subsequently, when the processing liquid which consists of caustic soda 3g, sodium-hydrosulfite 3g, 3g of betaine type amphoteric surface active agents, and 3000g of water performed reduction-cleaning processing for 10 minutes at 85 degrees C, the dyeing object was rinsed and it dried, the dyeing object of uniform and thick yellow was obtained with sufficient repeatability. The obtained dyeing object showed good light resistance.
[0032] 1.8g of yellow disperse dye constituents, ********** which were obtained in the example 3 example 1 UL Red GF 2.5g (Sumitomo Chemical Co., Ltd. make), ********** UL Blue GF 1.35g (Sumitomo Chemical Co., Ltd. make) and ******** TF (dyeing assistant by Sumitomo Chemical Co., Ltd.) are blended into a dye bath, and 1000ml of water was distributed, and an acetic acid and sodium acetate were added, it adjusted to pH 5, and the dye bath was created. Dacron tropical (polyester Toray Industries, Inc. product) 100g was dipped in this dye bath, and it dyed like the example 1, and the obtained dyeing object is dyed with uniformly sufficient repeatability dark brown, and showed still good light resistance.
[0033] It is 1.18g of sodium hydroxides to the [dye bath stability-test] above-mentioned color variance liquid. 6.8g of sodium dihydrogenphosphates is added, it adjusts to pH 7, and a dye bath is created. It holds at 140 degrees C for 30 minutes, stirring this dye bath in a dyeing pot as it is by the dyeing equipment Calah-pet for an examination (Japanese Dyeing Machine company make). Then, it dyes by holding for 130 degree-Cx 60 minutes, quenching to 90 degrees C, throwing in the electrode holder for cloth dyeing which twisted Dacron tropical (polyester cloth Toray Industries, Inc. product) immediately, and stirring again. after dyeing and 90 degrees C or less -- cooling -- the dyed goods-ed in a dye bath -- taking out -- rinsing and a reduction cleaning -- it rinses and dries and the last dyeing object is obtained A visual judgment of coloring power and a hue is performed, using the cloth which the obtained dyeing object was dyed on the same dyeing conditions as an example 1 as a canonical.
[0034] [Color-fastness-to-light examination] An urethane foam is backed on the obtained dyeing cloth, and it is 310nm. 750KJ irradiation of what attached in the 1cm place the ultraviolet-rays cut-off filter which intercepts the following light from the sample front face is carried out in xenon fade meter (black panel temperature of 89 degrees C) (detection wavelength 340nm), and it is JIS L 0804-1965. It judges with the gray scale for change in color.
[0035] The good result was shown, as the color formulation shown in Table 3 using compound (3) - (17) shown in Table 1 and 2 instead of the compound (1) in four to example 17 example 1 and a compound (2) was shown in Table 3, when the above-mentioned dye bath stability test and a color-fastness-to-light examination of a dyeing object are performed.
[0036] Instead of the compound (1) of example of comparison 1 example 1, and the compound (2), by the compound (1) independent, the color formulation shown in Table 3 was obtained, and the dye bath stability test and the color-fastness-to-light examination of a dyeing object were performed like examples 4-17. The result was inferior in all to the example, as shown in Table 3.
[0037]
[Table 1]

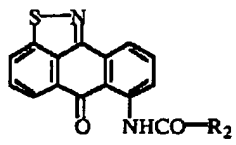
式（1）の代わりに使用される染料



化合物No.	X	Y	R_1
（3）	H	3—$OSO_2N(CH_3)_2$	H
（4）	H	3—OSO_2— 	CH_3
（5）	NO_2	H	C_2H_5
（6）	H	4—$COOC_2H_4OC_2H_4OCH_3$	C_2H_5
（7）	H	4—SO_2NHCH 	C_4H_9
（8）	H	4—$CONHCH_2CH$ 	CH_3
（9）	H	Cl	C_4H_9
（10）	H	4—$COOC_3H_6$— 	C_4H_9
（11）	CN	4—$SO_2NHCH(CH_3)_2$	H
（12）	NO_2	OCH_3	$CH_2CHC_4H_9$ 
（13）	H	3—Cl	NH— 
（14）	NO_2	4—Cl	C_3H_7
（15）	H	4—$COOC_2H_4O$— 	CH_3

[0038]
[Table 2]

式（2）の代わりに使用される染料



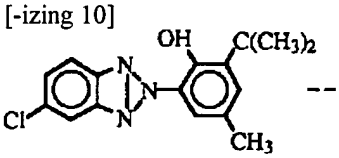
化合物No.	R_2
（16）	CH_3
（17）	C_2H_5

(Following margin)
[0039]
[Table 3]

実施例	配合種	染浴安定性		耐光堅牢度
		染色力	色相	
4	(1) + (2)	100	0,0	4-5
5	(3) + (2)	100	0,0	4-5
6	(4) + (2)	100	0,0-1D	4-5
7	(5) + (2)	95	0,0-1D	4-5
8	(6) + (2)	95	0-1P,0-1D	4-5
9	(7) + (16)	95	0-1P,1D	4-5
10	(8) + (16)	95	0-1P,0-1D	4-5
11	(9) + (16)	95	0,0-1D	4-5
12	(10) + (16)	95	0-1P,0-1D	4-5
13	(11) + (16)	90	1P,1D	4
14	(12) + (17)	90	1P,1D	4
15	(13) + (17)	95	0-1P,0-1D	4
16	(14) + (17)	95	1P,0-1D	4
17	(15) + (17)	95	1P,1D	4
比較例				
1	(1)	60	2-3P,3D	2

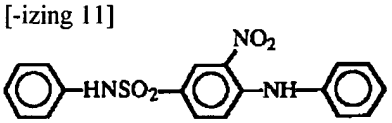
[0040] It is a formula (18) to the disperse dye formulation which contains a compound (1) and (2) like example 18 example 1.

[0041]
[-izing 10]



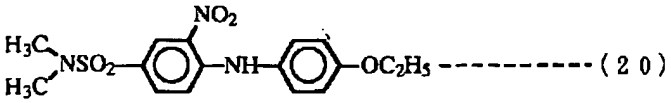
---------- (18)

[0042] It came out and dyed like the example 1 using the ultraviolet ray absorbent variance liquid [the mixture which consists of 40% of the compounds shown by ultraviolet ray absorbent:formula (18), 20% of anion system dispersants, and 40% of water] shown. 2g of this ultraviolet ray absorbent variance liquid was added at the time of a dye bath. The obtained dyeing object was uniform without dyeing spots, and the further excellent light resistance was again shown also in the above-mentioned color-fastness-to-light examination.
[0043] Example 19 compound (1) 100g, compound (2)100g, and formula (19)
[0044]
[-izing 11]



----------(19)

[0045] Compound [a compound (19)] come out of and shown The spray drying was carried out, after having atomized 100g by the sand mill by underwater [600g] with 300g of the formalin condensates of naphthalene sulfonic-acid soda and adding 350g of rig non sulfonic acids subsequently. The yellow disperse dye constituent which consists of 165% of anion system dispersants and 5% of moisture as a xeransis article including compound (1)10% and compound (19) 10% was obtained. When 5g of these constituents was dyed like the example 1, the dyeing object of uniform and thick yellow was obtained with sufficient repeatability. The obtained dyeing object showed good light resistance.
[0046] It is a formula (20) instead of the compound (19) in example 20 example 19.
[0047]
[-izing 12]



(20)

[0048] When it came out, and the yellow disperse dye constituent was obtained using the compound [a compound (20)] shown and it dyed like the example 1, the dyeing object of uniform and thick yellow was obtained with sufficient repeatability. The obtained dyeing object showed good light resistance.

[Translation done.]